Boise State University

CS Department

CS410/510 Spring ‘15

Assignment 2, Question 4

Retrieve the names of students who only took courses from his/her major department.

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| *Relational Algebra* | *English explanation* | *Notes* |
| R1 = GRADE\_REPORT http://cisnet.baruch.cuny.edu/holowczak/classes/3400/relationalalgebra/joinop.gif (gr.courseno = c.courseno) COURSE | Join GRADE\_REPORT with COURSE |  |
| R2 = R1 http://cisnet.baruch.cuny.edu/holowczak/classes/3400/relationalalgebra/joinop.gif (r1.ssn = s.ssn) STUDENT | Join STUDENT with R1 | R2 holds Grade\_Report x Course x Student |
| R3 = R2 \triangleright (ssn,deptcode) MAJOR | \triangleright is the symbol for anti-join. R3 includes only those tuples in R2 for which there is no tuple in MAJOR where ssn and deptcode match. | R3 contains the R2 records for each course taken by each student outside that student’s major. |
| R4 = ( π (fname, lname) STUDENT) – R3 |  | Since we want the other students (those who only took courses in their major(s)) we subtract the students with tuples in R3 from the set of all students. |

Assignment 2, Question 9

Retrieve the name of each student who has claimed minor(s), but has not yet received any grade from any of his/her minor departments.

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| *Relational Algebra* | *English Explanation* | *Notes* |
| R1 = GRADE\_REPORT http://cisnet.baruch.cuny.edu/holowczak/classes/3400/relationalalgebra/joinop.gif (gr.courseno = c.courseno) COURSE |  |  |
| R2 = R1 http://cisnet.baruch.cuny.edu/holowczak/classes/3400/relationalalgebra/joinop.gif (r1.ssn = s.ssn) STUDENT | R2 holds Grade\_Report x Course x Student | Same as R2 for Q4. |
| R3 = R2 http://cisnet.baruch.cuny.edu/holowczak/classes/3400/relationalalgebra/joinop.gif (r3.ssn = r2.ssn) MINOR | Join R2 with a student’s minor(s) | Result will contain only students with declared MINOR |
| R4 (ssn, count\_of\_deptcodes) = ssn ℑ count (σ (m.deptcode = c.deptcode) (R3)) | R4 now contains the ssn of the student, and the number of courses the student has taken that are in that student’s MINOR. |  |
| R5 = ssn σ (count\_of\_deptcodes >0) R4 | R5 contains the set of students who have taken at least one student in their MINOR. |  |
| R6 = π (fname, lname) STUDENT – R5 | R6 contains the set of students who haven’t taken a course in their declared MINOR. |  |